

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE		PAGE OF PAGES	
2. AMENDMENT/MODIFICATION NO.		3. EFFECTIVE DATE		4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. <i>(If applicable)</i>	
6. ISSUED BY		CODE		7. ADMINISTERED BY <i>(If other than Item 6)</i>		CODE	
8. NAME AND ADDRESS OF CONTRACTOR <i>(No., street, county, State and ZIP Code)</i>				(X)		9A. AMENDMENT OF SOLICITATION NO.	
						9B. DATED <i>(SEE ITEM 11)</i>	
						10A. MODIFICATION OF CONTRACT/ORDER NO.	
						10B. DATED <i>(SEE ITEM 11)</i>	
CODE		FACILITY CODE					

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

- ☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
- (a) By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: <i>(Specify authority)</i> THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES <i>(such as changes in paying office, appropriation date, etc.)</i> SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER <i>(Specify type of modification and authority)</i>

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER <i>(Type or print)</i>		16A. NAME AND TITLE OF CONTRACTING OFFICER <i>(Type or print)</i>	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
<i>(Signature of person authorized to sign)</i>		<i>(Signature of Contracting Officer)</i>	

Item 14. Continued.

CHANGES TO THE BIDDING SCHEDULE

Bidding Schedule - Replace the Bidding Schedule, pages 00010-3 through 00010-10, with the accompanying new Bidding Schedule bearing the notation "ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACA63-03-B-0006."

CHANGES TO THE SPECIFICATIONS

Replacement Sections - Replace the following section with the accompanying new section of the same number and title, each bearing the notation "ACCOMPANYING AMENDMENT NO. 0004 TO SOLICITATION NO. DACA63-03-B-0006:"

SECTION 02467 DRILLED PIERS

END OF AMENDMENT

ACCOMPANYING AMENDMENT NO. 0004 FOR SOLICITATION DACA63-03-B-0006

Consolidated Wing Support Complex Title
Goodfellow Air Force Base, Texas Location

Solicitation No. DACA63-03-B-0006

BIDDING SCHEDULE
(To be attached to SF 1442)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
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All work required by the plans and specifications for the construction of the Goodfellow Air Force Base Consolidated Wing Support Complex excluding Option Bid Items.

0001 Consolidated Wing Support Complex building complete, including utilities to the 5-ft line, and exclusive of all other work listed separately.

Job Sum *** \$_____

[AM #0001]

0002 Drilled Piers

0002AA 30-In Dia. Drilled Piers 315 VLF \$_____ \$_____

0002AB (AM#4) Temporary Casings
for Drilled Piers (30 in) 105 VLF \$_____ \$_____

0002AC 36-In Dia. Drilled Piers 575 VLF \$_____ \$_____

0002AD (AM#4) Temporary Casings
for Drilled Piers (36 in) 192 VLF \$_____ \$_____

0002AE 42-In Dia. Drilled Piers 191 VLF \$_____ \$_____

0002AF (AM#4) Temporary Casings
for Drilled Piers (42 in) 65 VLF \$_____ \$_____

0002AG 48-In Dia. Drilled Piers 107 VLF \$_____ \$_____

0002AH (AM#4) Temporary Casings
for Drilled Piers (48 in) 35 VLF \$_____ \$_____

0003 Construct all Exterior Work outside the Consolidated Wing Support Complex building's 5 ft line (Including utilities, earthwork, paving, sidewalk, curb and gutter, screen walls and all other work not listed separately)

Job Sum *** \$_____

0004 Warranty Work (All Contract Work)

The monetary value of this bid item shall equal at least 1 per cent of the total of all bid items preceding it. A value less than 1 per cent will result in a determination of non-responsive bid. See Contract Specification Section 01770 CONTRACT CLOSEOUT, paragraph "Contractor's Response to Construction Warranty Service Requirements."

Job Sum *** \$_____

ACCOMPANYING AMENDMENT NO. 0004 FOR SOLICITATION DACA63-03-B-0006

Solicitation No. DACA63-03-B-0006

BIDDING SCHEDULE (cont)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
0005	Operation & Maintenance Manuals	Job	Sum	***	\$ 28,000.00
<u>[AM #0001]</u>					
0006	Final Record Drawings	Job	Sum	***	\$ 68,750.00
TOTAL BASE BID \$					
0007	<u>OPTION NO. 1: All work required by the plans and specifications for construction of the Comprehensive Interior Design (CID) package.</u>				
		Job	Sum	***	\$
0008	<u>OPTION NO. 2: All work required by the plans and specifications for the rerouting of the outside plant cabling.</u>				
		Job	Sum	***	\$
0009	<u>OPTION NO. 3: All work required by the plans and specifications for the connecting of the outside plant cabling.</u>				
		Job	Sum	***	\$
0010	<u>OPTION NO. 4: All work required by the plans and specifications for construction of the lightning protection.</u>				
		Job	Sum	***	\$
0011	<u>OPTION NO. 5: All work required by the plans and specifications for the demolition and abatement of Building 101. (Including all utilities to the 5 ft line)</u>				
0011AA	<u>Fluorescent Light Fixtures</u>				
	Abatement and Disposal	36	EA	\$	\$
0011AB	<u>Lead based paint</u>				
	Abatement and Disposal	1152	SF	\$	\$
0011AC	<u>Demolition and disposal of existing building concrete foundations</u>				
		Job	***	***	\$
0011AD	<u>Demolition of building</u>	Job	Sum	***	\$
Total Option No. 5					\$

ACCOMPANYING AMENDMENT NO. 0004 FOR SOLICITATION DACA63-03-B-0006

Solicitation No. DACA63-03-B-0006

BIDDING SCHEDULE (cont)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
<u>[AM #0001]</u>					
0012	<u>OPTION NO. 6: All work required by the plans and specifications for the demolition and abatement of Building 104. (Including all utilities to the 5 ft line)</u>				
0012AA	<u>Fluorescent Light Fixtures</u>				
	Abatement and Disposal	39	EA	\$_____	\$_____
0012AB	<u>Mercury Switches</u>				
	Abatement and Disposal	2	EA	\$_____	\$_____
0012AC	<u>Demolition and disposal of existing building concrete foundations</u>				
		Job	***	***	\$_____
0012AD	<u>Demolition of building</u>				
		Job	Sum	***	\$_____
Total Option No. 6					\$_____
0013	<u>OPTION NO. 7: All work required by the plans and specifications for the demolition and abatement of Building 145. (Including all utilities to the 5 ft line)</u>				
0013AA	<u>Floor Tile and Associated Mastic</u>				
	Abatement and Disposal	1620	SF	\$_____	\$_____
0013AB	<u>Fluorescent Light Fixtures</u>				
	Abatement and Disposal	172	EA	\$_____	\$_____
0013AC	<u>Mercury Switches</u>				
	Abatement and Disposal	2	EA	\$_____	\$_____
0013AD	<u>Demolition and disposal of existing building concrete foundations</u>				
		Job	***	***	\$_____
0013AE	<u>Demolition of building</u>				
		Job	Sum	***	\$_____
Total Option No. 7					\$_____

ACCOMPANYING AMENDMENT NO. 0004 FOR SOLICITATION DACA63-03-B-0006

Solicitation No. DACA63-03-B-0006

BIDDING SCHEDULE (cont)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
<u>[AM #0001]</u>					
0014	<u>OPTION NO. 8: All work required by the plans and specifications for the demolition and abatement of Building 158. (Including all utilities to the 5 ft line)</u>				
0014AA	<u>Floor Tile and Associated Mastic</u>				
	Abatement and Disposal	2190	SF	\$	\$
0014AB	<u>Fluorescent Light Fixtures</u>				
	Abatement and Disposal	175	EA	\$	\$
0014AC	<u>Mercury Switches</u>				
	Abatement and Disposal	9	EA	\$	\$
0014AD	<u>Lead based paint</u>				
	Abatement and Disposal	4040	SF	\$	\$
0014AE	<u>Demolition and disposal of existing building concrete foundations</u>	Job	***	***	\$
0014AF	<u>Demolition of building</u>	Job	Sum	***	\$
Total Option No. 8					\$
0015	<u>OPTION NO. 9: All work required by the plans and specifications for the demolition and abatement of Building 308. (Including all utilities to the 5 ft line)</u>				
0015AA	<u>Floor Tile and Associated Mastic</u>				
	Abatement and Disposal	7700	SF	\$	\$
0015AB	<u>Fluorescent Light Fixtures</u>				
	Abatement and Disposal	110	EA	\$	\$
0015AC	<u>Lead based paint</u>				
	Abatement and Disposal	1584	SF	\$	\$
0015AD	<u>Pipe insulation</u>				
	Abatement and Disposal	50	FT	\$	\$
0015AE	<u>Demolition and disposal of existing building concrete foundations</u>	Job	***	***	\$
0015AF	<u>Demolition of building</u>	Job	Sum	***	\$
Total Option No. 9					\$

ACCOMPANYING AMENDMENT NO. 0004 FOR SOLICITATION DACA63-03-B-0006

Solicitation No. DACA63-03-B-0006

BIDDING SCHEDULE (cont)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
<u>[AM #0001]</u>					
0016	<u>OPTION NO. 10: All work required by the plans and specifications for the demolition and abatement of Building 318. (Including all utilities to the 5 ft line)</u>				
0016AA	<u>Floor Tile and Associated Mastic</u>				
	Abatement and Disposal	1750	SF	\$	\$
0016AB	<u>Fluorescent Light Fixtures</u>				
	Abatement and Disposal	40	EA	\$	\$
0016AC	<u>Lead based paint</u>				
	Abatement and Disposal	1260	SF	\$	\$
0016AD	<u>Demolition and disposal of existing building concrete foundations</u>	Job	***	***	\$
0016AE	Demolition of building	Job	Sum	***	\$
Total Option No. 10					\$
0017	<u>OPTION NO. 11: All work required by the plans and specifications for the demolition and abatement of Building 339. (Including all utilities to the 5 ft line)</u>				
0017AA	<u>Floor Tile and Associated Mastic</u>				
	Abatement and Disposal	150	SF	\$	\$
0017AB	<u>Fluorescent Light Fixtures</u>				
	Abatement and Disposal	40	EA	\$	\$
0017AC	<u>Lead based paint</u>				
	Abatement and Disposal	84	SF	\$	\$
0017AD	<u>Demolition and disposal of existing building concrete foundations</u>	Job	***	***	\$
0017AE	Demolition of building	Job	Sum	***	\$
Total Option No. 11					\$

ACCOMPANYING AMENDMENT NO. 0004 FOR SOLICITATION DACA63-03-B-0006

Solicitation No. DACA63-03-B-0006

BIDDING SCHEDULE (cont)

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount____
<u>[AM #0001]</u>					
0018	<u>OPTION NO. 12: All work required by the plans and specifications for the purchase and installation of the Audio and Video systems and the appliances.</u>				
		Job	Sum	***	\$_____

TOTAL BASE BID PLUS OPTION 1 THRU 12 \$_____

ACCOMPANYING AMENDMENT NO. 0004 FOR SOLICITATION DACA63-03-B-0006

Solicitation No. DACA63-03-B-0006

BIDDING SCHEDULE (cont)

NOTES:

1. ARITHMETIC DISCREPANCIES (EFARS 14.407-2)

(a) For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bidding schedule as submitted by bidders:

- (1) Obviously misplaced decimal points will be corrected;
- (2) In case of discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected; and
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the Government will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

2. If a modification to a bid based on unit prices is submitted, which provides for a lump sum adjustment to the total estimated cost, the application of the lump sum adjustment to each unit price in the bid schedule must be stated. If it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the bid schedule.

3. Bidders must bid on all items.

4. Costs attributable to Division 01 - General Requirements is assumed to be prorated among bid items listed.

5. Responders are advised that this project may be delayed, cancelled or revised at any time during the solicitation, selection, evaluation, negotiation and/or final award process based on decisions related to DOD changes in force structure and disposition of the Armed Forces.

6. For the purpose of this solicitation, the word "item" shall be considered to mean "schedule" as used in Provision 52.214-0019, CONTRACT AWARD--SEALED BIDDING--CONSTRUCTION, in Section 00110 INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS.

ACCOMPANYING AMENDMENT NO. 0004 FOR SOLICITATION DACA63-03-B-0006

Solicitation No. DACA63-03-B-0006

BIDDING SCHEDULE (cont)

NOTES (cont)

7. EXERCISE OF OPTIONS (SWDR 715-1-1 (16 January 1996))

The Government reserves the right to exercise the option(s) by written notice to the Contractor either singularly or in any combination for up to 90 calendar days after award of the Base Bid without an increase in the Offeror's Bid Price. Completion of added items shall continue at the same schedule as the Base Bid unless otherwise noted in Section 01000 CONSTRUCTION SCHEDULE, paragraph 1 entitled SCHEDULE.
NOTES cont.

8. ABBREVIATIONS

For the purpose of this solicitation, the units of measure are represented as follows:

- a. LS (lump sum)
- b. VLF (vertical linear feet) [AM #0001]
- c. SF (square feet) [AM #0001]

END OF BIDDING SCHEDULE

SECTION 02467

DRILLED PIERS

05/2002

Amendments 0003 and 0004

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent specified. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 615/A 615M (1996a) Deformed and Plain Billet-Steel
Bars for Concrete Reinforcement

ASTM A 706 **(AM#4) (2003) Low-Alloy Steel Deformed and
Plain Bars for Concrete Reinforcement**

1.2 QUALIFICATIONS

The work shall be performed by a specialty Contractor, specializing in the specified foundation system and having experience installing the specified foundation system under similar subsurface conditions.

1.3 SUBSURFACE DATA

Subsurface data logs are shown on the drawings. The subsurface investigation report is available for examination at the Fort Worth District Office. Upon request, these samples will be made available. The request should reach the Fort Worth District Office at least three (3) days prior to the time of requested examination date.

1.4 MEASUREMENT AND PAYMENT

1.4.1 Drilled Piers

Drilled foundation piers will be measured by the linear foot for depths actually drilled in strict conformance to the requirements of the specification and drawings. The length of drilled piers will be measured from the authorized bottom of the bells or piers to their upper termination at the bottom of the grade beam, slab, pier cap, or any formed portion of the pier above grade, as applicable. Payment for drilled foundation piers will be made at the applicable contract unit price per linear foot according to diameter. **(AM#4) This payment shall constitute full compensation for all plant, labor, materials, and all costs necessary for drilling and furnishing and placing steel and concrete, complete, except for the installation and removal of temporary casing and except for bellwork including additional concrete for bells indicated below..**

1.4.2 Belling Piers

Payment for bellings the drilled foundation piers will be included in the contract price for the structure to which the work pertains, which payment shall constitute full compensation for labor, plant, materials, and all costs necessary to enlarge the pier holes to form the bells, including concrete in the enlarged portions.

1.4.3 (AM#4) Temporary Casing

(AM#4) Payment for installation and removal of temporary casing when required will be measured by the linear foot from the very lowest point where originally installed to the upper termination of the grade beam, slab, pier cap, or any formed portion of the pier above grade, as applicable. Payment for casing piers will be made at the applicable contract unit price per linear foot according to diameter. This payment shall constitute full compensation for all plant, labor, materials, and all other costs necessary for installation and removal of the temporary casing.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-01 Preconstruction Submittals

Survey; G.

Furnish a certified copy of the drilled pier survey. See Part 1 paragraph "RECORDS: Survey."

Qualifications; G.

Furnish the qualifications of the foundation system contractor. See Part 1 paragraph QUALIFICATIONS.

SD-11 Closeout Submittals

Drilled Pier Records; G.

Furnish the drilled pier placement records. See Part 1 paragraph RECORDS: Drilled Pier Records.

1.6 QUALIFICATIONS

Qualifications of the foundation system contractor shall show that the contractor has been engaged in the successful installation of drilled foundation caissons or piers for at least 5 years.

1.7 SUPERVISION, INSPECTION, AND SAFETY

1.7.1 Contractor Supervision

The Contractor shall provide for the supervision of all phases of drilled pier construction. Supervision shall be the Contractor's responsibility as outlined in Quality Control provisions of Section 01451 CONTRACTOR QUALITY CONTROL. Each drilled pier excavation shall be checked by the Contractor

for its depth, water removal, cleanup, workmanship, and for all tolerance requirements before any concrete is placed.

1.7.2 Government Inspection

The Contracting Officer reserves the right to inspect each drilled pier excavation prior to placement of reinforcing steel and concrete. The Contractor shall furnish the Contracting Officer all necessary equipment required for proper inspection of drilled pier excavations. This inspection in no way relieves the Contractor of his responsibilities as outlined in CONTRACT CLAUSE "INSPECTION OF CONSTRUCTION."

1.7.3 Safety Precautions for Workmen and Inspectors

The Contractor shall provide and operate all equipment required by the Contracting Officer to allow visual inspection of pier excavations by workmen or the Government, including equipment for personnel entering the excavation. Sufficient approved equipment shall be maintained to raise and lower Contractor and Government personnel into the excavation whenever required. All such equipment and all procedures used for personnel entering pier excavations shall strictly comply with all requirements of the applicable safety manuals.

1.7.3.1 Life Line

Each person entering a drilled pier excavation shall be provided with a life line rigged so that the person can be immediately hoisted out of the excavation in an emergency. The life line shall be suitable for instant rescue, securely fastened to a shoulder harness, and separated from any line used to remove excavated materials. No person shall be lowered into a drilled pier excavation prior to casing the shaft through the overburden.

1.7.3.2 Ventilation

Each drilled pier excavation shall be provided with a ventilating device of sufficient capacity to assure a safe and healthy atmosphere before workmen and inspectors are permitted to enter the drilled pier excavation and during all work periods.

1.8 RECORDS

1.8.1 Survey

Furnish a certified copy of the survey. Lines and levels shall be established and caisson centerline locations staked and maintained by a registered surveyor or engineer provided by the Contractor.

1.8.2 Drilled Pier Records

Detailed records in an approved form, for each pier, showing shaft and bell diameters, depths of test holes, top and bottom elevations, bearing strata description, casing description, water conditions, concrete strength, concrete volume, rock elevations, dates of excavation and concrete placement, and other pertinent information. Upon completion of pier work, the Contractor shall provide a record of centerline locations based on the survey of the registered surveyor or engineer provided by the Contractor. In addition, corrective measures shall be similarly recorded. A complete tabulation of all records pertaining to approved piers shall be delivered to the Contracting Officer.

PART 2 PRODUCTS

2.1 CONCRETE WORK

Concrete work shall be in accordance with requirements of Section 03300 CAST-IN-PLACE STRUCTURAL CONCRETE, as modified herein:

2.1.1 Coarse Aggregate

Maximum size of coarse aggregate shall be 1-inch.

2.1.2 Reinforcing Steel

Reinforcing steel shall conform to ASTM A 615, ASTM A 616, ASTM A 617, ASTM A 706, Grade 60. Steel shall be tied into cages and inserted securely in the drilled pier shaft, in position and alignment, as shown, prior to concrete placement.

2.1.3 Strength

Concrete strength shall be 3000 psi at 28 days. Slump shall be not less than 5 inches nor more than 7 inches.

PART 3 EXECUTION

3.1 PREPARATION

a. Excavation of piers or groups of piers shall be performed so that the excavation and the placement of reinforcing steel and concrete are a continuous operation performed the same day that the excavation is started.

Excavations shall not be left open overnight. Drilled piers shall be excavated to the depths and dimensions shown in the drawings. The bottoms of the pier excavation shall be cleaned of loose and disturbed materials or materials determined to be unsatisfactory for the required bearing pressure. Excavated material shall be disposed of in accordance with Section 02315 EXCAVATION, FILLING, AND BACKFILLING FOR BUILDINGS. Excavations below indicated depths, without specific direction by the Contracting Officer, shall be filled with concrete at no cost to the Government. Where, in the opinion of the Contracting Officer, materials are encountered at the indicated depths that do not provide the required bearing capacity or would result in unsatisfactory construction, the excavation shall be extended as directed by the Contracting Officer. Payment for the additional excavation and pier construction will be in accordance with PART 1 paragraph MEASUREMENT AND PAYMENT.

b. The drilling equipment shall be of suitable type and of sufficient size and capacity to satisfactorily perform the required drilling operations as specified or indicated. All equipment shall be subject to specific approval by the Contracting Officer. Any equipment which fails to perform satisfactorily shall be immediately modified as approved or removed and replaced.

3.2 INSTALLATION

a. During construction, the pier excavation shall be adequately and securely protected against cave-ins, displacement of the surrounding earth, and inflow of ground and surface water by means of temporary steel casings as required or as directed by the Contracting Officer. Casings shall have

outside diameters not less than indicated shaft sizes, and shall be capable of sustaining loads imposed by installing, sealing, maintaining the excavated hole, and extracting. The casing shall have a minimum wall thickness of 1/4-inch. The ends of the casing shall not be damaged such that proper seating and sealing are impaired. Damaged casing shall be immediately repaired or removed from the site. Temporary steel casings shall be withdrawn, as the concrete is being placed, maintaining sufficient head of concrete within the casing to offset water table and to prevent extraneous material from falling in from the sides or entering from beneath casing and mixing with concrete. Casings may be jerked upward a maximum of 4 inches to break the bottom seal but shall thereafter be removed with a smooth, continuous motion. All voids surrounding the casing shall be filled with concrete extruded from the bottom of the casing as it is being raised, with all free water surrounding the casing being forced to the surface ahead of the rising concrete. Venting shall be provided if necessary to insure removal of water around the casing as the concrete level rises, and the casing is being removed. Driving of casings shall not be permitted within 20 feet of concrete Placed within the preceding 3 days.

b. The inside of steel casings shall be thoroughly cleaned before being placed in a pier hole.

c. Pier holes shall be protected from inflow of ground or surface water. Water that flows into the excavations shall be continuously removed and the maximum permissible depth of water in the bottom of excavation will be 2 inches at the start of concrete placement. In the event that excessive water enters the hold, the excavation shall be deepened to undisturbed material immediately prior to concrete placement.

d. Drilled piers shall be underreamed to the dimensions shown in the drawings. All pier underreams shall be measured using pier underream calipers specifically designed for this purpose and approved by the Contracting Officer.

e. Concrete shall be placed in the pier hole within three hours after approval of the completed excavation. Concrete shall be continuously placed by methods that insure against segregation and dislodging of excavation sidewalls and shall completely fill the bell and shaft. Concrete shall be placed by pumps, tremie, or drop chutes. The discharge of pumping chute shall be kept a minimum of 3 feet below the fresh concrete surface during placement.

f. Concrete shall be vibrated for not less than the upper 5 feet of pier.

g. Protection shall be provided around the top of the excavation to prevent debris and water from entering the excavation and concrete placed therein.

3.3 TOLERANCES

a. Any pier out of center or plumb beyond the tolerance specified shall be corrected as necessary to comply with the tolerances and the Contractor shall bear any cost of correction. Method of correction shall be approved by the Contracting Officer.

b. Cross sections of shafts and bells shall not be less than design dimensions. Cross sections of shafts and bells shall not be greater than design dimensions plus 3 inches unless approved or directed by the Contracting Officer.

- c. Location of the tops of installed piers shall not deviate from the centerline locations shown on the drawings more than 3 inches.
- d. Vertical piers shall be installed plumb within a maximum of 1-1/2 inches for the first 10 feet and within 1/2 inches for each 10 feet of additional depth.
- e. The center of the pier will be established after construction is completed and the center marked by a suitable permanent mark.
- f. Batter piers shall be installed a maximum of 2 percent of length from specified inclination.

3.4 PROTECTION

Provide protection around top of the excavation to prevent debris from being dislodged into the excavation and concrete.

-- End of Section --